

Saving Old Roofs

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TROPICAL

The Tropical Paint & Oil Co., Cleveland, Ohio

How to Save Old Roofs With the TROPICAL System of Roof Repair and Roof Maintenance

ROOFs are compelled to withstand more severe service than any part of a building, yet roofs usually receive little or no attention until leaks develop. "Out of sight—out of mind" probably explains the reason for the neglect of roofs or they are neglected because they are not readily accessible or because of the lack of technical knowledge necessary to properly judge the condition of a roof.

The roof is in reality the most important part of every building. One small leak can cause a great deal of damage. One open seam or flashing pulled loose may damage a roof to the point where a complete new roof becomes necessary. The constant expansion and contraction of roof surfaces due to changes in temperature will cause cracks to appear. Wind, rain, sleet and snow scours the roof surface, pulls flashings loose. The sun dries

out the roof to the point where all elasticity is gone and rapid deterioration takes place.

Roofs should be inspected at regular intervals and the inspection should be made by competent individuals who know where to look for signs of possible trouble. Our purpose in issuing this booklet is to instruct the layman in how to inspect a roof, where to look for defects and then how to remedy them.

In this booklet we have included diagrams of the majority of roof troubles and also give complete instructions as to how to overcome them. With the diagrams as a guide anyone can make an intelligent roof inspection and determine the proper method of making repairs. We hope the information given herein will enable you to prevent or remedy your roof troubles with a consequent saving of money.

Don't Reroof—Restore Instead 90% of the Leaky Roofs Can Be Successfully Restored

Though a dozen streams of water may come gushing through your roofs each time it rains, it does not necessarily follow that the old roof must be torn off and a new one put on. Most old roofs can be saved and made new-like without the heavy expense, the dirt, havoc and inconvenience of the laborious tearing off and building up of a new roof.

The Tropical system of roof repair and maintenance makes use of the materials still left in the old roof. A roof does not wear out overnight. Minor defects can be repaired from time to time without the aid of the roofing contractor and a roof can be completely recovered and renewed when found necessary with Tropical roof coatings with common labor in a simple and efficient manner at less than one-half the cost of a new roof.

Roofs of every kind can be successfully maintained and renewed with Tropical roof coatings. Flat roofs, sloping roofs, roofs of felt, paper and roll roofing, built-up roofs, composition roofs, roofs of tar and gravel or slag, concrete roofs, tin, corrugated and other metal roofs each can be made to render new-like service with Tropical roof coatings applied according to the methods developed for each type of roof.

In only about ten per cent of the cases where old, worn-out leaky roofs have been brought to our attention has it been necessary to remove the old roofing material. In every other instance we have worked out an economical and efficient means of utilizing the old materials as a foundation for our products.

Renew with ROOFKOTER Repair with TOCOSEAL Resaturate with ERIELASTIC

Roofkoter, Toco seal and Erielastic are each made for the repair, maintenance and renewal of roofs. One roof may require Roofkoter, another Toco seal, a third Erielastic, or it may be a combination of two or even all three products that would be required to make a permanent roof repair job.

As an example let us consider the roof of a shed used for the storage of machinery. The roof is of rough pine lumber covered with one layer of red "roofers sheathing" and a layer of three-ply smooth surfaced roll roofing nailed down with common roofing nails. The roof is two years old and in a heavy rain a few small leaks have appeared and some of the boards show signs of rot. An inspection of the roof surface shows no breaks, but the roll roofing appears dry and lifeless. Actually the substance used in saturating the roll roofing has dried out or evaporated and all that remains is the porous felt paper base which is like so much blotting paper. On a roof of this type Erielastic alone will resaturate and thus renew the roof.

Another roof of built-up tar and gravel construction four years old has permitted water to seep through here and there. Inspection of the roof shows sections of the roof have been swept free of gravel and the bare spots show minute cracks. Most of the gravel on the roof is loose, has been washed to the low end of the roof and into the gutters. On this roof a coating of Roofkoter is required as it is of a heavier body it will fill the small hair-line cracks and will hold the gravel on the roof.

The third roof has holes in it. Flashings have pulled away from parapet walls. Large cracks appear around chimneys and skylights. It leaks like a sieve. Still it can be restored with Toco seal, the plastic roof coating, which can be troweled into and over the cracks and holes and over copings and parapet walls to stop every leak.

With thirty years of roof maintenance experience we can tell you which product to use and how to use it to renew roofs of every type and condition.

Use Your Own Labor And Save Half the Cost

Anyone can get good results with Roofkoter, Toco seal and Erielastic. With the diagrams on the following pages and the directions supplied with the materials, the least skilled labor can turn out a good roofing job.

Labor usually represents half the cost of re-roofing. The proportion is even greater when an old roof must be ripped off and a new one applied. Using your own labor, just at odd times when they are not otherwise occupied, you can gradually renew your roofs

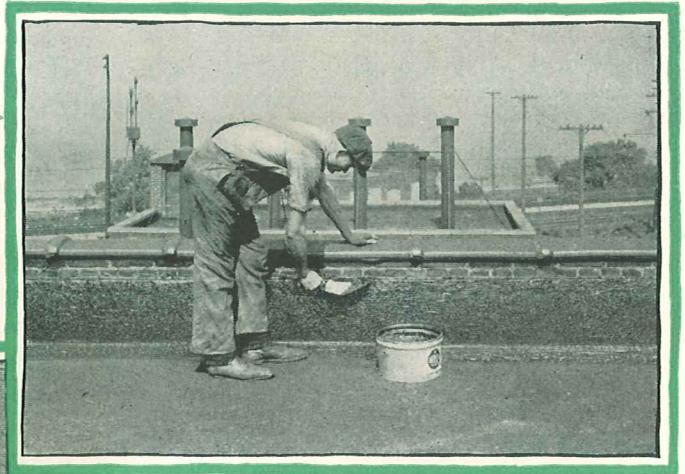
at the cost of material alone—and that cost is mighty low in comparison with roofs rebuilt on contract.

The value of a roof coating is measured in proportion to its original cost and the years of service it will render. On the basis of the cost per square per year of service you will find our roofing products to be extremely economical. This fact coupled with extreme ease of application and the lowest priced labor make Tropical roof coatings the choice of every discerning maintenance official.

How to Renew a Roof with Roofkoter

1. Repair All Flashings

The first thing to do when renewing an old roof is to repair all flashings, as the greatest percentage of leaks occur at such points. This work should be done very carefully and thoroughly, as described on pages 6 and 7.



2. Sweep The Roof

Old roofs are almost always covered with cinders and dirt, which should be removed by sweeping and flushing, before any roof paint or cement is applied. In the case of tar and gravel roofs, all loose gravel should be thoroughly removed by scraping with a hoe or shovel and then sweeping.

3. Pour On Roofkoter

The Roofkoter should be dipped out of the barrel in buckets and poured on the roof. This is an easier, quicker and more efficient method than dipping the brush into the container.

A convenient way is to mark the roof into "squares" (10x10) with a chalk line, and pour a bucketful of Roofkoter into each square.



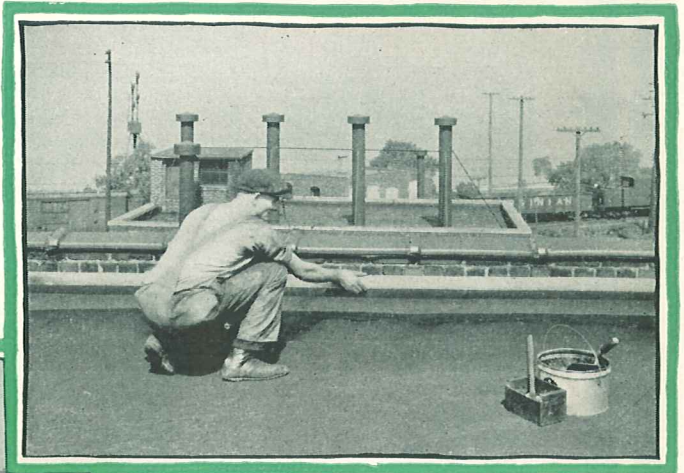
4. Spread with a Roofing Brush

As soon as a bucketful of Roofkoter is poured out, it should be spread with a long-handled roofing brush. Quite a little pressure should be placed on the brush handle in order that the Roofkoter may be forced into all tiny cracks and pores.

How to Repair Flashings with Toco seal

1. Replace Old Wood Strips →

Many times when a building is erected wooden strips are inserted in the parapet walls and the roof covering is extended up the wall and nailed on the strip to form a flashing. If these wood strips have rotted they should be replaced with new ones.



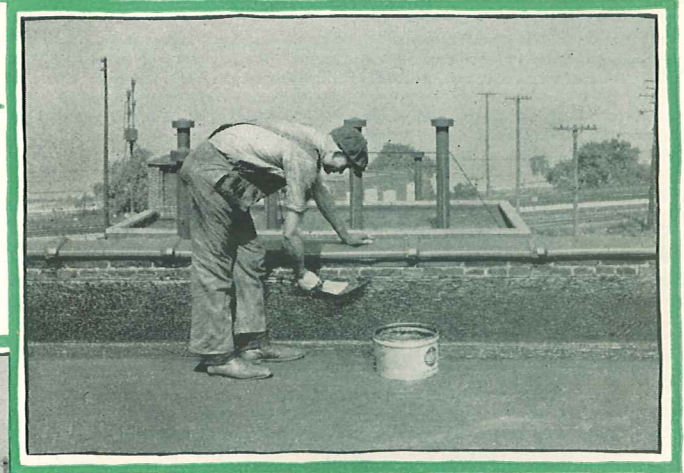
← 2. Nail Back Flashings

The flashings should all be nailed back on the new strips. Care should be taken to see that all flashings are nailed down tight, whether new strips are inserted or not, as many times it will be found that flashings have become loose.



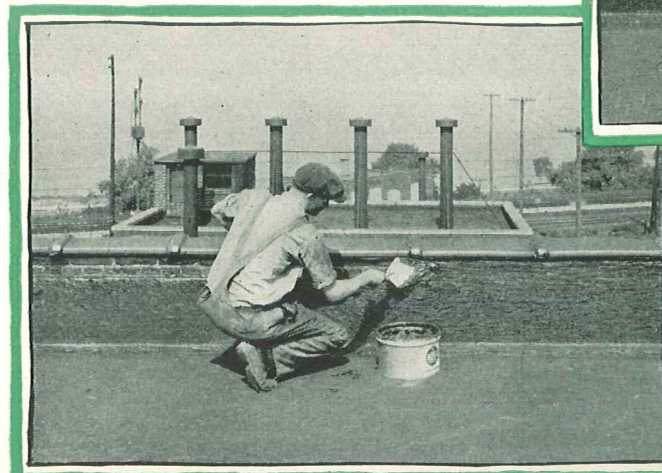
3. Cover Flashings with Toco seal →

The entire flashing should now be covered with a heavy coat of Toco seal. The Toco seal should cover the angle where the flashing meets the roof and extend for several inches over the roof. The top of the flashing should also be thoroughly covered.



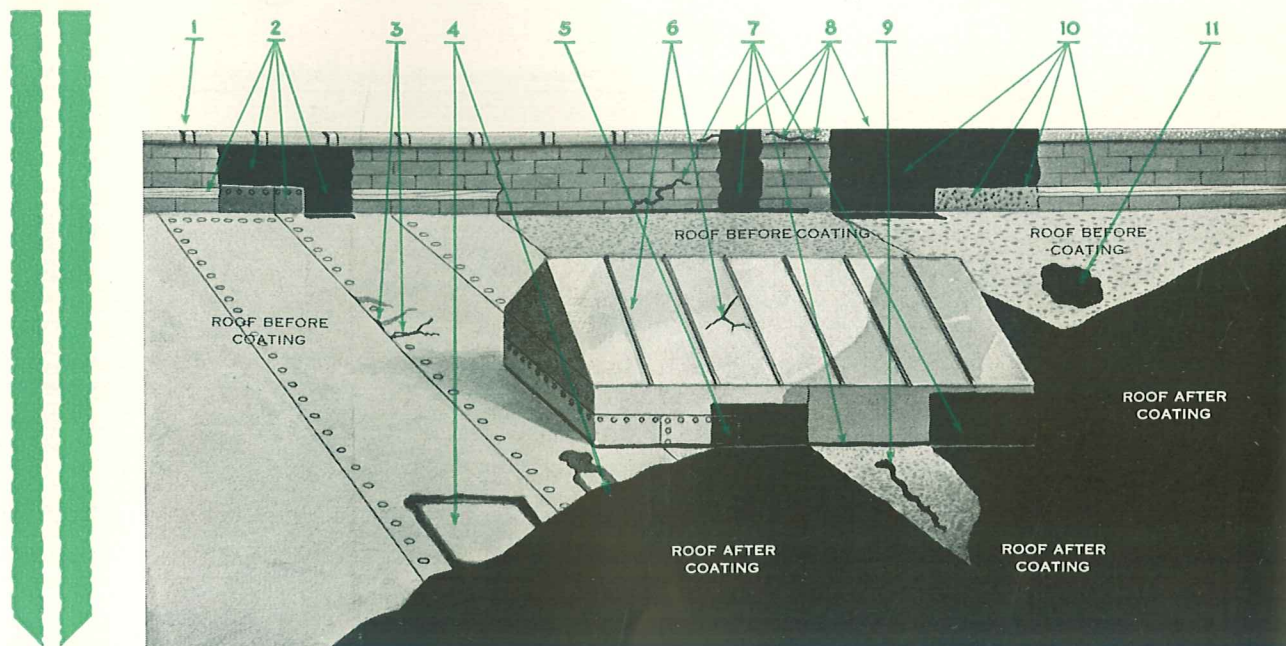
← 4. Cover Wall with Toco seal

The parapet wall above the flashing should also be thoroughly covered with Toco seal and this should extend over the top of the wall unless it is covered with coping tile. In this case all joints should be covered with Toco seal.



NOTE: When using a trowel, wet it with kerosene oil before putting it in the Toco seal. This will prevent the Toco seal sticking to it, and will make the work go much faster and easier.

Where to Look for Leaks



Roll Roofing, Composition,
Felt or Paper Roof

Concrete Roof

Tar and Gravel
or Slag Roof

And How to Repair Them

FIRST of all, it might be well to explain what happens to a roof after it is originally put on. In the case of roll roofing, composition, felt, paper, tar and gravel and slag, the roof begins to dry out as soon as it has been finished. The life-giving oils gradually evaporate until finally the roof covering becomes brittle and cracks, leaks develop and it loses its power of resistance. If nothing is done to renew such a roof, it finally powders up and the rain washes it off the surface.

In the case of metal roofs of all kinds, the action is somewhat different. The protective coating of the metal gradually wears away and the metal rusts. Nails rust out, holes develop and the seams loosen; then the water gets in at these openings.

The first place to look for trouble on the roof is at the flashings, as defective flashings are probably the greatest source of leaky roofs.

Another thing to keep in mind is that the water often gets into a roof at a different point than indicated by the water that comes through the ceiling on the inside of the building. For instance, water may get through a flashing and then run along under the roof covering to a point ten or fifteen feet away, before it leaks through the ceiling and shows from below.

In the above diagrams we show the most vulnerable points on a roof (indicated by arrows) and below we give a brief explanation of how to make such spots waterproof.

Even if a roof is not leaking, you should examine all these points to make sure that they are all right.

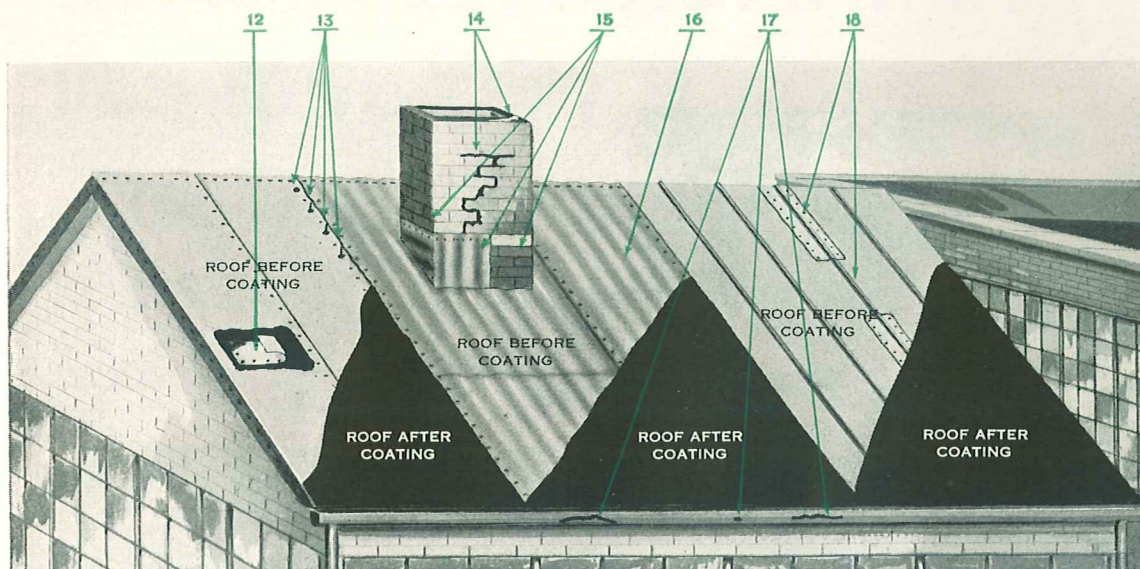
Clear, Concise, Complete Instructions

(1) Coping tile joints on parapet walls are apt to leak and should be thoroughly covered with Toco-seal. It is not necessary to cover the entire tile if it is vitrified, because tile of that kind will shed water, but the joints do need attention.

(2) On an old roof you will generally find that the flashings have come loose. When a building is erected a wooden strip is usually inserted in the parapet wall and the roof covering is then extended up the parapet wall and nailed to the strip to form a flashing. If you find that the strip has rotted, a new strip should be put in. The flashings should then be nailed securely to this new strip, or to the old one, if it is still in good condition. Then completely cover the flashings with Toco-seal, making sure that Toco-seal covers the upper edge of the flashing and

extends a few inches over the roof where the parapet wall and roof join. The parapet wall should be completely covered with Toco-seal (first priming the surface with Erie-lastic) as it is porous and water is apt to be absorbed by the wall and thus get behind the flashing.

On some roofs you will find that the roll roofing, felt or paper does not extend up the parapet wall, but is laid flush with the wall and a tin flashing dropped down over it. It is always best to raise this tin flashing and look at the edge of the roofing, as many times it shrinks away from the parapet wall. If this has happened the crack between the roof covering and the parapet wall should be filled with Toco-seal and then the tin flashing should be driven back in place and given a coating of Toco-seal all along the seams.



Tin or other
Metal Roof

Corrugated Iron Roof

Standing Seam Rising
or Crimp Roof

(3) On roofs covered with roll roofing, composition, felt or paper, the nails frequently rust and pull out and the seams loosen and allow water to get through. In applying Roofkoter to a roof of this kind, be sure that all nails are well covered and force Roofkoter into the open cracks, so that they are completely waterproof. If the seams are wide open it is best to trowel Toco-seal over them and then apply Roofkoter over the entire roof. Buckles or blisters should be split and nailed flat.

(4) Large holes and cracks in roofs covered with roll roofing, composition, felt, paper, tar and gravel or slag should be repaired as follows: First cut a piece of muslin larger than the opening to be covered and shrink it in water, allowing it to dry thoroughly. After the muslin is dry, clean the roof along the edges of the hole and then apply Roofkoter over the hole and far enough beyond the edges so that the space covered is larger than the piece of muslin which you have cut. Now, place muslin over the hole, pressing it down in the Roofkoter and then cover the entire patch with Toco-seal, being sure that the Toco-seal extends well beyond the edges of the patch.

(5) Flashings around skylights and chimneys should be repaired in the same way as we have described above for parapet walls under (2), except metal skylights, in which case Toco-seal should be heavily troweled along the crack where the skylight joins the roof and then Roofkoter spread over the metal sides as shown under (7).

(6) If the glass in the skylight is cracked or loose at the edges Toco-seal can be used to make it waterproof and hold it in place.

(7) On concrete roofs Toco-seal should be troweled on heavily along the cracks, where the roof joins parapet walls, chimneys and skylights. Roofkoter should then be applied to the entire parapet walls, sides of skylights and well up on chimneys. If the parapet walls or chimneys are in bad condition with cracks and loose mortar they should be covered with Toco-seal instead of Roofkoter.

(8) If the top of the parapet wall is finished with concrete, or brick without a tile coping, Roofkoter should be applied over the entire top. If cracks have developed it is best to coat with Toco-seal instead of Roofkoter.

(9) Large cracks in a concrete roof should first be filled with oakum and then Toco-seal should be troweled over the top extending well beyond the edges of the cracks.

(10) On a tar and gravel or slag roof, flashings and parapet walls should be made waterproof as described under (2).

(11) After a rain small puddles of water will sometimes remain on a flat roof. These low spots should be filled with Toco-seal, which will level them off and prevent this happening in the future.

(12) Large holes and cracks on metal roofs should be patched in the following manner: Thoroughly clean the roof all around the edge of the hole. Then coat over the hole with Toco-seal, allowing it to extend for a foot or two on all sides, and nail a metal patch over the hole, making the patch several inches larger than the hole itself. Now cover the entire patch with Toco-seal, being sure that the edges of the patch are completely covered.

(13) On metal roofs nails frequently become loose or rust out altogether, allowing the roof covering to become loose. Such places should be carefully nailed down and covered with Toco-seal before coating the whole roof surface with Erielastic.

(14) If the top and sides of chimneys are cracked and mortar is dropping out, Toco-seal should be troweled over the entire surface.

(15) If flashings are loose around chimneys and skylights they should be nailed up again and then completely covered with Toco-seal, making sure that it extends well up over the top of the flashing and several inches out over the roof.

(16) Leaks are apt to develop at the seams in corrugated iron roofs, especially during a wind storm when rain is forced up under the metal. The sheets should be first nailed down tightly and then the seams should be covered with Toco-seal. Even when the seams are in fairly good condition Erielastic should be forced into the cracks as much as possible when the roof is being coated.

(17) Leaky valleys can be made waterproof by giving the inside a heavy coat of Roofkoter.

(18) On standing seam, rising or crimp roofs the only satisfactory way to keep them waterproof is to cover the seams with muslin because it is at the seams in these roofs where most of the leaks occur. First apply Toco-seal all along the edges and top of the seams. Then cover each seam with a strip of muslin which has been thoroughly shrunk and dried. The muslin should be stretched across the seam and pressed down into the Toco-seal. The muslin should then be given a coat of Erielastic and then Erielastic should be spread over the entire roof, including the muslin strips.

How to Patch Holes with Toco seal



1. Clean the Hole

The first step in making a patch is to thoroughly clean the hole and the surrounding roof. This should be done by brushing with a stiff brush, being sure that all dirt and cinders are removed from the hole and for a foot or two around it.

2. Cover with Roofkoter

Next spread a heavy coat of Roofkoter over the hole and for a foot or two around the edge. It is very important that this should be a heavy coat, so as to cover the surface thoroughly.



3. Put On Muslin Patch

Now carefully lay a muslin patch directly over the hole and press down firmly in the Roofkoter. This patch should be cut several inches larger than the hole and should be first soaked in water and dried out thoroughly.



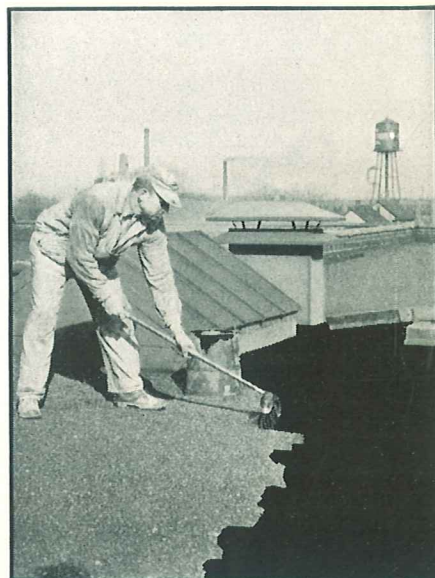
4. Cover with Toco seal

Now cover the entire patch and several inches beyond each edge with Toco seal. This should be troweled on in a heavy coat, making sure that the edges of the patch are completely covered.

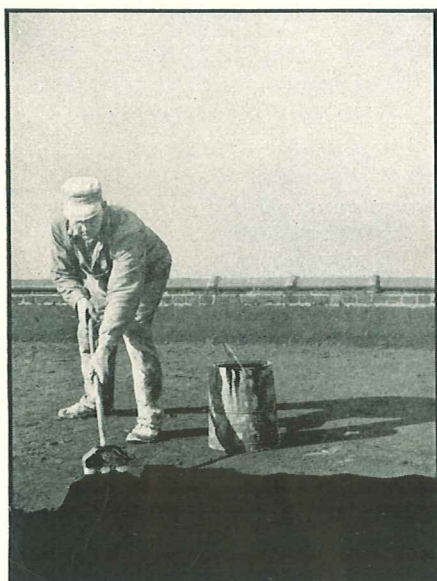


TROPICAL ROOFKOTER

The Standard of Comparison for Over Thirty Years



Applying Roofkoter over an Old Gravel Roof



Applying Roofkoter over an Old Concrete Roof



Applying Erielastic over a Corrugated Iron Roof

ROOFKOTER has stood the test of time. For over thirty years it has been the one roof coating of accepted superiority. On thousands of roofs of every kind throughout the world Roofkoter has rendered a service measured in years of leak-proof roof protection.

Roofkoter is a heavy black compound made up of mineral gums, penetrating oils, non-drying resaturants and rock asbestos fibre. The mineral gums employed give it body and elasticity. The penetrating oils and non-drying resaturants enable Roofkoter to reach down into every tiny crack and crevice and effect perfect waterproof seal. The asbestos fibre acts as a binder, prevents cracks and serves as a fire retardant.

Roofkoter forms a continuous rubber-like sheet without any laps, seams or joints. Moisture can't get through its tough and elastic film. It clings tight and is there to stay. It can be used in any climate as its great elasticity permits its use at sub-zero temperature or under the direct rays of the tropic sun.

Roofkoter may be used on roof surfaces of concrete, felt, tar and gravel or slag, composition, roll roofing and paper. It will make each surface waterproof and can be relied upon to render long and leak-proof service.

Roofkoter is unaffected by smoke and gases and is therefore suitable for use in industrial districts where ordinary roof coatings are subject to chemical disintegration as well as normal wear. Since Roofkoter may be quickly and easily applied in any weather, many industrial plants make a practice of keeping a quantity on hand for emergency repairs.

Use Roofkoter to gain years of extra service from old and worn-out roofs.

Now read about the Savings to be had!

Leaky Roofs are Expensive Luxuries

One roof leak can cause a lot of damage. Stocks of goods, machinery, walls and ceilings can be easily spoiled by moisture coming through a worn-out roof. Many a roof that could be saved by a timely inexpensive application of Roofkoter becomes so far gone when neglected as to necessitate a complete costly re-roofing job. The expense of tearing off an old roof is frequently as great as the cost of renewing with Roofkoter and if the cost of a

new roof were included there would be an immense difference in cost without added service.

Roofs recoated with Roofkoter will last for years and render the same service a new roof would give. Recoat with Roofkoter to prevent possible damage from roof leaks. Recoat with Roofkoter and save half the cost of a new roof.

Easy to Apply—No Skill Needed

Roofkoter is easy to apply. It comes to you ready for use with a suitable roofing brush which is furnished with each barrel of Roofkoter. Common labor, without any previous roofing experience, can turn out a 100% job of re-roofing by using Roofkoter according to the clear and complete directions furnished.

Compared to recovering your roofs with roll roofing, shingles, metal or tar and gravel, there is as much difference in the cost of labor as there is in the cost of material, for Roofkoter will save one-half or more on both items of roof construction.

Use Roofkoter and save money. Use Roofkoter and enjoy complete roof protection.

Covering Capacity of Roofkoter

One gallon of Roofkoter will cover approximately 50 to 75 square feet on composition, roll roofing, roofing paper, canvas or concrete surfaces. On tar and gravel one gallon will cover approximately 35 to 50 square feet one coat. Of course, Roofkoter can be spread much thinner than this so that it will cover more surface per gallon, but in order to get full value out of this material these figures should be adhered to as closely as possible.

Ten Reasons Why You Should Use Roofkoter

1. *Applied right over old roof*
2. *Absolutely waterproof*
3. *Easy to apply*
4. *Forms a seamless one-piece roof*
5. *Decreases fire hazards*
6. *Suitable for any climate*
7. *Elastic—won't crack*
8. *The utmost in economy*
9. *Preserves new roofs—restores old*
10. *Equal to ten coats of paint*





TOCOSEAL FOR REPAIRS

TOCOSEAL is of the same composition as Roofkoter except that it is made of a heavier consistency and is applied with a trowel or a long-handled spreading tool.

Most jobs of roof restoration with Roofkoter require some Toco seal for patching holes, filling large cracks, for repairing flashings, parapet walls, chimneys, skylights, ventilators and other breaks in the roof contour.

The many places where Toco seal is necessary to secure the perfect repair of badly worn, cracked and broken roof surfaces is covered in the diagrams on Pages 6 and 7 and the pictures on Pages 5 and 8. You will find Toco seal an invaluable adjunct to Roofkoter in the repair and restoration of roofs of every kind.

Improves With Age

Toco seal is soft and smooth as it comes from the package. After application it gradually forms a tough, durable, leather-like coating over the top, but remains pliable underneath. This allows it to contract and expand with the roof surface and prevents cracking. As the oxidation of Toco seal covers a period of years, it actually becomes tougher and firmer as it grows older. The thickness and toughness of Toco seal makes it highly resistant to the mechanical wear caused by hail, sleet, driving rain and snow that a roof must withstand.

Uses and Advantages

Any workman can do a good job with Toco seal, whether using it to repair holes, to waterproof flashings, or as a complete roof covering. The work goes rapidly, especially when Toco seal is spread with a long-handled spreader. In an emergency Toco seal can be used while rain is falling. This makes it possible to stop a leak before serious damage results.

It is an ideal material for making flashings waterproof, for waterproofing the sides and tops of parapet walls and

for repairing holes and large cracks in roofs, brickwork or masonry.

Holes in gutters and valleys can easily be repaired and leaky skylights made tight and waterproof with Toco seal. It is also used for waterproofing basement walls. A heavy coat of Toco seal troweled on the outside of walls below the grade line at the time building is erected will last as long as the building itself and insure a dry basement at all times.

TOCOSEAL As a Complete Roof Covering

There are certain types of roofs that will require a thick coating to effect a perfect job of waterproofing. Some types of built-up tar and gravel roofs come under this classification, but usually it is a poured concrete roof that requires the extra thickness and extra toughness of Toco seal. A concrete roof should be first primed with Erielastic then a coating of Toco seal applied to about one-eighth inch thickness. In such work it is spread with a long-handled spreading tool and the work can then be done with great rapidity. A complete seamless coat of Toco seal will outwear any other type of coating that can be spread over an old roof.

Covering Capacity

Owing to the great variety of surfaces upon which Toco seal is used, rough and smooth, porous and hard, it is difficult to lay down any fixed rule of covering capacity. It is essential that a full, unbroken covering should be secured, and this coating may vary from one-sixteenth to one-eighth of an inch. It will be easily understood that over a perfectly smooth surface forty-five to fifty pounds to the square may secure this result, while over a rough surface (such as an old gravel roof from which the loose gravel has been removed, or even over a very porous surface) more would be required.

ERIELASTIC . . . The Primer and Resaturant

Erielastic, the third member of the Tropical Family of roof coatings, serves a two-fold purpose. It is used as a priming or first coat when Roofkoter or Toco-seal are applied over a dried out or porous roof surface, and it serves as a resaturant for roofs that are not so bad as to require an application of Roofkoter or Toco-seal. Erie-

lastic is also the proper coating to employ on tin, corrugated and other metal roofs. Erielastic is jet black and of the consistency of heavy paint. It can be spread with any kind of brush and on a large area a long-handled roofer's brush may be employed for speedier application. It has great durability and its composition is similar to the liquid portions of Roofkoter and Toco-seal. It penetrates deep into porous surfaces and forms an excellent water seal.

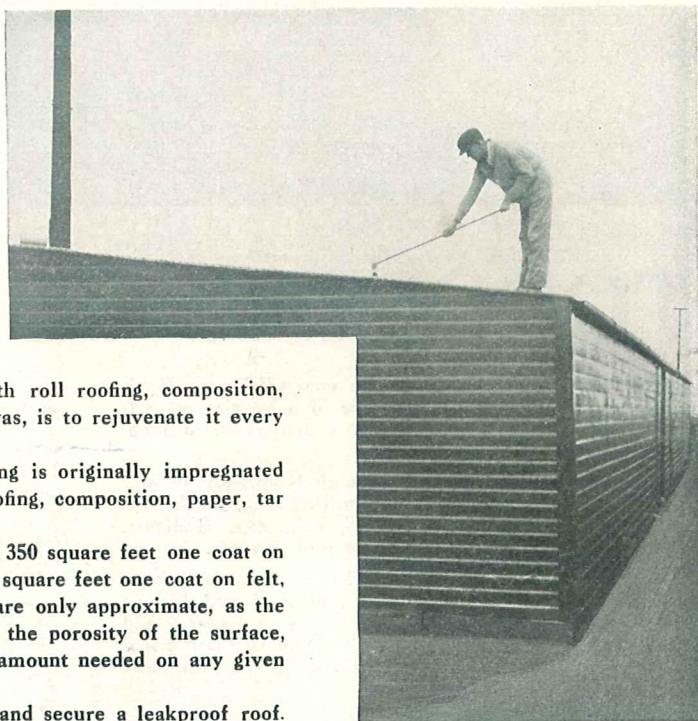
Gives Dried Out Roofs New Like Elasticity

The ideal way of caring for a roof covered with roll roofing, composition, paper, metal, tar and gravel, slag, concrete or canvas, is to rejuvenate it every two or three years with a coat of Erielastic.

It is similar to the liquid with which roll roofing is originally impregnated and it serves as a resaturant in the case of roll roofing, composition, paper, tar and gravel, and slag roofs.

One gallon of Erielastic will cover about 250 to 350 square feet one coat on metal or other hard surfaces and about 100 to 150 square feet one coat on felt, canvas and other porous surfaces. These figures are only approximate, as the covering capacity varies considerably according to the porosity of the surface, but they will form a basis on which to figure the amount needed on any given job.

Use Erielastic as either a primer or resaturant and secure a leakproof roof.



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